What is claimed is:

1. An optical fiber, comprising:

an entrance face that is optically coupleable with a device for transmitting a light beam through said optical fiber, said entrance face including a core region and a cladding region surrounding said core region,

wherein said cladding region is at least partially covered with a coating that enhances the reflectivity of said entrance face.

2. The optical fiber according to claim 1, wherein said coating is formed substantially over a whole area of said cladding region.

3. The optical fiber according to claim 1, wherein said coating is selectively formed on an area of said cladding region defined in a vicinity of said core region.

4. The optical fiber according to claim 1, wherein said coating is made of metal.

5. The optical fiber according to claim 1, wherein said coating has a mirror surface.

6. The optical fiber according to claim 1, wherein said entrance face is perpendicular to an optical axis of said optical fiber.

7. The optical fiber according to claim 1, wherein said entrance face is inclined against an optical axis of said optical fiber.

8. An optical fiber, comprising:

an entrance face that is optically coupleable with a device for transmitting a light beam through said optical fiber,

wherein said entrance face is provided with a structure that diffracts a light reflected by said entrance face.

9. The optical fiber according to claim 8,

wherein said optical fiber includes a core and a cladding, and

wherein said entrance face is formed such that said core protrudes from said cladding, an end face of said core being parallel with an end face of said cladding.

10. The optical fiber according to claim 9,

wherein said core protrudes from said cladding by a

length less than $\lambda/(4n)$, where λ represents the wavelength of the light reflected by said entrance face, and n represents the refractive index of a medium transmitting the light.

11. The optical fiber according to claim 10,

wherein said core protrudes from said cladding by a length equal to $\lambda/8n$.

12. The optical fiber according to claim 8,

wherein said optical fiber includes a core and a cladding, and

wherein said entrance face is recessed at said core with an end face of said core being parallel with an end face of said cladding.

13. A method for processing an entrance face of an optical fiber, through which a light beam is to be introduced into the optical fiber, comprising:

forming a negative photoresist layer over the entrance face;

selectively exposing the photoresist layer located substantially above a core of the optical fiber to light introduced into the optical fiber from another end face thereof;

developing the photoresist layer to selectively remove the photoresist layer from an end face of a cladding of the optical fiber;

forming a reflection layer on the entrance face to enhance the reflectivity of the entrance face; and

removing the photoresist layer remaining on the entrance face.

14. The method according to claim 13, further comprising selectively exposing the photoresist layer above an outer periphery of the end face of the cladding so that an area on the end face of the cladding defined in a vicinity of the core is selectively exposed when the photoresist layer is developed.

15. The method according to claim 13, wherein the reflection layer has a mirror surface.

16. The method according to claim 13, wherein the reflection layer is made of metal.

17. The method according to claim 13, wherein the entrance face is inclined against an optical axis of the optical fiber by obliquely cutting an end of the optical fiber before forming the negative photoresist layer over the

entrance face.

18. A method for processing an entrance face of an optical fiber, through which a light beam is to be introduced into the optical fiber, comprising:

forming a photoresist layer over the entrance face;

exposing the photoresist layer located substantially above a core of the optical fiber to light introduced into the optical fiber from another end face thereof;

developing the photoresist layer to selectively remove the photoresist layer from one of an end face of the core and an end face of a cladding of the optical fiber;

processing the entrance face to form a structure thereon that diffracts the light beam reflected by the entrance face; and

removing the photoresist layer remaining on the entrance face.

19. The method according to claim 18,

wherein the photoresist layer formed over the entrance face is developed so that the cladding is exposed, and

wherein processing the entrance face includes etching the cladding so that the core protrudes from the cladding with the end face of the core being parallel with the end face of the cladding.

20. The method according to claim 19,

wherein the cladding is etched so that the core protrudes from the cladding by a length less than $\lambda/(4n)$, where λ represents the wavelength of the light beam reflected by the end face, and n represents a refractive index of a medium transmitting the light.

21. The optical fiber according to claim 20,

wherein the core protrudes from the cladding by a length equal to $\lambda/8n$.

22. The method according to claim 18,

wherein the photoresist layer formed over the entrance face is developed so that the core is exposed, and

wherein processing the entrance face includes forming an additional layer on the entrance face, the additional layer being capable of transmitting the light beam.

23. The method according to claim 22, wherein the additional layer has a same refraction index as the core.

24. The method according to claim 18,

wherein the photoresist layer formed over the entrance face is developed so that the core is exposed, and

wherein processing the entrance face includes etching the core so that the core forms a recessed area on the entrance face and so that the end face of the core is parallel with the end face of the cladding.

25. The method according to claim 18,

wherein the photoresist layer formed over the entrance face is developed so that the cladding is exposed, and

wherein processing the entrance face includes forming an additional layer on the entrance face so that the core becomes a recessed area on the entrance face.

26 The method according to claim 18, wherein the entrance face is inclined against an optical axis of the optical fiber by obliquely cutting an end of the optical fiber before forming the photoresist layer over the entrance face.

27. An optical fiber, comprising:

an entrance face that is optically coupleable with a device for transmitting a light beam through said optical fiber, said entrance face having a core region and a cladding region surrounding said core region,

wherein said entrance face is arranged so that optical characteristics of the light beam deflected by said entrance face changes from when the light beam impinges on

substantially a center of said core region and when the light beam impinges on said entrance face at a location substantially displaced from said center of said core region.

28. An optical fiber, comprising,

an entrance face that is optically coupleable with a device for transmitting a light beam through said optical fiber,

wherein said entrance face is provided with a step having a height less than $\lambda/4n$, where λ represents the wavelength of the light beam reflected by said entrance face, and n represents a refractive index of a medium transmitting the light.